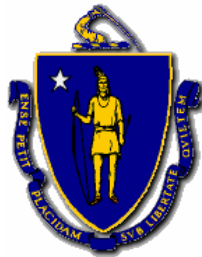


CONSTRUCTION HANDBOOK

A GUIDE FOR MODERNIZATION AND DEVELOPMENT OF
STATE-AIDED PUBLIC HOUSING

JUNE 2007

Massachusetts Department of
Housing and Community Development



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PREFACE

The Department of Housing & Community Development, Construction Management Unit, is pleased to make this June 2007 edition of the **CONSTRUCTION HANDBOOK** available to you. The June 2007 edition represents the culmination of thousands of hours of work by many individuals going back to 1980 when DHCD introduced the first edition of the **CONSTRUCTION HANDBOOK**.

Now, as then, the purpose of the **CONSTRUCTION HANDBOOK** is to make the construction phase of DHCD-funded modernization and new construction projects as problem-free as possible. We have done this by clearly setting out the procedures to be followed, the forms to be used, and the responsibilities of the participants.

For those that have used a previous edition(s) of the **CONSTRUCTION HANDBOOK**, you will find that we have made several changes to the text and how all of the forms are now available on our web site www.mass.gov/dhcd. These changes were made to keep the **CONSTRUCTION HANDBOOK** current with the present requirements for state-aided construction and to reduce the amount of paperwork required, particularly in the close-out portion of the work. We urge you to leave your previous edition on the shelf and to rely on this new edition to see you through your next construction project.

ACKNOWLEDGMENTS

All the members of the DHCD Construction Management staff played an important role in the preparation of the latest edition of this handbook: Tom Barthelette, Leo Coté, Robert S. Danilecki, , Tom Hackenson, William Miller, Randy Waters, and David R. McClave, Director

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CONSTRUCTION HANDBOOK

TABLE OF CONTENTS

INTRODUCTION	1
ROLES AND RESPONSIBILITIES	2
STEPS IN THE CONSTRUCTION PHASE	5
1 PRECONSTRUCTION PROCEDURES	5
<input type="checkbox"/> LHA CREATES PROJECT FILE	
<input type="checkbox"/> LHA SELECTS THE RESIDENT COORDINATOR	
<input type="checkbox"/> DESIGNER HIRES PROJECT REPRESENTATIVE	
<input type="checkbox"/> DESIGNER ORGANIZES PRECONSTRUCTION MEETING	
<input type="checkbox"/> ISSUE THE NOTICE TO PROCEED	
<input type="checkbox"/> ORGANIZE THE GROUNDBREAKING CEREMONY	
2 CONSTRUCTION STARTUP PROCEDURES.....	13
<input type="checkbox"/> CONDUCT SITE SURVEY	
<input type="checkbox"/> SET UP OFFICE	
<input type="checkbox"/> SET UP PROJECT DIRECTORY	
<input type="checkbox"/> CONTRACTOR PREPARES CONSTRUCTION PROGRESS SCHEDULE	
<input type="checkbox"/> SCHEDULE OF VALUES	
<input type="checkbox"/> RECORD DRAWINGS	
3 PROCEDURES DURING CONSTRUCTION.....	15
<input type="checkbox"/> INSPECTION BY LOCAL AGENCIES AND INSPECTORS	
<input type="checkbox"/> CONTRACTOR'S ADMINISTRATIVE RESPONSIBILITIES	
<input type="checkbox"/> WEEKLY FIELD MEETINGS	
<input type="checkbox"/> COMMUNICATIONS AND SUPERVISION	
<input type="checkbox"/> TESTING PROCEDURES	
<input type="checkbox"/> SUBMITTALS	
<input type="checkbox"/> INTERPRETATION OF DOCUMENTS	
<input type="checkbox"/> CHANGES TO THE CONTRACT DOCUMENTS	
<input type="checkbox"/> WORK IN DISPUTE	
<input type="checkbox"/> PAYMENTS TO CONTRACTORS	
4 ACCEPTING THE PROJECT	33
<input type="checkbox"/> PREPARING FOR OCCUPANCY	
<input type="checkbox"/> OCCUPANCY PERMIT	
<input type="checkbox"/> FINAL INSPECTION AND PUNCHLIST	
<input type="checkbox"/> CERTIFICATE OF SUBSTANTIAL COMPLETION	
<input type="checkbox"/> PROPERTY AND COMPREHENSIVE INSURANCE	
5 CONSTRUCTION CLOSEOUT PROCEDURES	35
<input type="checkbox"/> COMPLETION TIMETABLE	
<input type="checkbox"/> PREPARATION FOR MAINTENANCE	
<input type="checkbox"/> FINAL COMPLETION DOCUMENTS	
<input type="checkbox"/> FINAL COMPLETION PROCEDURES	
<input type="checkbox"/> WARRANTIES AND GUARANTEES	



CONSTRUCTION HANDBOOK

INTRODUCTION

Once a contractor has been selected and all the necessary permits are in hand, it is time to begin building construction or modernization improvements. While the Contractor is responsible for carrying out the construction, all the participants previously involved in the process continue to play a role throughout the construction phase - monitoring progress, reviewing and approving materials and documents, and approving and processing payments to the Contractor.

The construction or modernization of state-funded housing involves:

- ? observance of state laws and regulations;
- ? compliance with DHCD procedures and requirements;
- ? working with many people in public and private organizations; and
- ? continuous monitoring, coordination, attention to detail, and follow-up throughout the construction process.

This handbook will help **LHAs, Contractors, and Designers** work effectively with each other, and with **DHCD**, during the construction process by:

- ? defining the roles and responsibilities of all participants; and
- ? describing the required procedures to ensure that the project is completed on schedule, within budget, and in accordance with the contract documents.

This handbook refers to specific laws, regulations, and contracts which govern the construction process, but it is not meant to substitute for these laws, regulations, and contracts. In those instances where it is critically important that you read and understand these laws, the handbook refers you to the relevant document.

ROLES AND RESPONSIBILITIES

A variety of people and agencies, each with specific responsibilities for the project, is involved in the construction process. To avoid conflicts, confusion, and misunderstandings, and to insure that construction proceeds smoothly, it is important that the participants understand the roles and responsibilities of each party.

As the owner, developer, and manager of the state-aided public housing in each community, the **Local Housing Authority (LHA)** has the primary responsibility for the entire development or modernization process.

The LHA

During construction, the LHA is bound by the terms of three contracts into which it enters during the course of funding and construction:

- ❑ **Contract for Financial Assistance (CFA)** sets forth the obligations and responsibilities between the LHA and the Commonwealth with regard to the financing of the construction itself and the subsidizing of the operating costs once the development is occupied.
- ❑ **THE CONTRACT FOR DESIGNER SERVICES** is between the LHA and the **Designer** (typically an Architect or Engineer). It describes the responsibilities of both parties with respect to designing the project, administering the construction contract, and overseeing actual construction.
- ❑ **The Owner-Contractor Agreement** (also called the Construction Contract) is between the LHA and the Contractor. It defines the rights and responsibilities of the parties during construction. The Agreement refers to the Contract Documents, which are composed of the project manual, the drawings, and any addenda issued during bidding.

During construction **LHA Board** approval is required only to execute change orders and closeout documents. Almost all of the day-to-day construction related duties are assigned to the LHA contract officer.

If Board members and LHA staff, other than the LHA contract officer, wish to visit the site, the project representative accompanies them throughout their visit. If they have questions that the LHA contract officer or project representative cannot answer, they should contact the Designer for assistance.

When the LHA votes to award the construction contract, it also designates an **LHA contract officer** and **alternate LHA contract officer**. This may be the Executive Director, a staff person, or a board member. The responsibilities of the LHA contract officer during construction are to:

- ❑ sign all periodic payments to the Contractor on behalf of the LHA;
- ❑ sign all change orders and construction change directives after the LHA Board has voted to approve the change; and
- ❑ report on the construction status, change orders, payments, and problems at the regular LHA meetings.

The Board also designates an **Equal Employment Opportunity (EEO) officer** who is responsible for monitoring the Contractor's compliance with the affirmative action and equal opportunity requirements set forth in the construction contract. This entails reviewing the Contractor's weekly affirmative action workforce reports and reviewing the Contractor's projected workforce schedule. The EEO officer may require that payments to the Contractor be reduced for noncompliance with the affirmative action requirements. Such reductions are set forth in the general conditions of the construction contract.

THE RESIDENTS

See 760 CMR 6.00; Tenant Participation in the Administration Public Housing and 760 CMR 10.00:Programs in State-Aided Public Housing

A **LOCAL RESIDENT ORGANIZATION (LRO)** must be involved in both the modernization and redevelopment process pursuant to DHCD's regulations governing resident participation.

The LRO represents the residents' interests on many issues during construction, such as the concern about the timing of work and the relocation of residents. Sometimes this representation is through a **resident coordinator**, while at other times the representation is accomplished in a less formal manner. Whoever represents the LRO may attend the preconstruction conference and the weekly job meetings.

If no LRO exists, a temporary chairperson is appointed by the LHA until a resident organization is formed. If a resident coordinator is not required, the LRO chairperson, or designee, is responsible for representing the residents' interests.

Certain modernization jobs require a resident coordinator. This determination is made by DHCD before the job begins. The resident coordinator functions as a representative of the LRO only for the particular construction project for which she was hired. If a resident coordinator is required, the LHA selects one with the assistance of the LRO.

The resident coordinator facilitates the resident-related aspects of construction so that residents are informed about the construction work and lines of communication are established to head off potential problems.

THE DESIGNER

THE Designer is the agent of the LHA during the construction process. As such, the Designer is responsible for administering the construction contract and for overseeing construction for the LHA. This means that all formal communication between the Contractor and the LHA must go through the Designer. The Designer may engage a project representative (also known as the clerk of the works) to observe construction on a daily basis.



The relationship between the Designer and the LHA is defined in the Contract for Designer Services. The relationship between the Designer (as agent for the LHA) and the Contractor is governed by the general conditions of the construction contract.

The AIA Architect's Handbook of Professional Practice provides an overview of the Designer's responsibilities. It reads, in part, as follows:

"...Because of the special knowledge of the work gained through preparation of the design and resulting construction documents, the [Designer] has the primary responsibility to interpret their requirements and to judge the performance of the parties under the contract."

"This responsibility to judge performance is not limited to the technical requirements of the drawings and specifications, but also includes judging compliance with the terms of the contract."

"Impartiality and consistency with the intent of the contract documents must be basic to all of the architect's decisions. All decisions and all interpretations must be documented, either in writing or by issuing drawings or other documents."

The **CONTRACTOR** may have several staff who help manage and supervise the construction project.

The **PROJECT MANAGER** is the official spokesperson for the Contractor. All formal communication from the Designer to the Contractor is directed to the project manager. The project manager attends the weekly job meetings to discuss pertinent matters with the Designer and keep informed of the progress on the job.

The **PROJECT SUPERINTENDENT** supervises construction on a daily basis. If the project manager cannot be reached, the Contract Documents permit the project superintendent to receive communication for the Contractor. Since the project superintendent is on the site every day, he is often consulted by other parties such as the Designer on an informal basis.

Under the provisions of M.G.L. Chapter 149 the Contractor may be responsible for the work of up to 17 **FILED SUBCONTRACTORS** who perform work in specialized trades such as plumbing or heating. Whether or not a subcontractor is filed makes no difference as to who is responsible for that subcontractor's work. It is the Contractor who contracts with all subcontractors, and so it is the Contractor who is ultimately responsible to the LHA for the quality of the work of the subcontractors.

Before the construction contract was awarded, a complete set of bid documents was submitted to the **LOCAL BUILDING INSPECTOR** for final review and issuance of the building permit. During construction the building inspector and other **local and state inspectors** make periodic inspections to determine if the project is being built in accordance with the applicable codes.

THE CONTRACTOR

FILED SUBCONTRACTOR

M.G..L. Chapter 149 §44F

LOCAL INSPECTORS

DHCD

All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd

The **DHCD PROJECT MANAGER** has been actively working on the project long before it gets to the construction stage, giving assistance to the LHA and Designer during the funding, design, and bidding processes. The project manager continues to monitor the progress of the project as it proceeds through construction, including the administration of the Contract for Designer Services, but is not actively involved in the construction process itself.

The **CONSTRUCTION MANAGEMENT UNIT** is DHCD's liaison with LHAs during the entire construction process from contract award through final completion and construction closeout. This office is responsible for monitoring all activity during the actual construction phase for modernization, redevelopment, and development projects as well as providing technical assistance.

The **DHCD CONSTRUCTION ADVISOR** is assigned to the job before construction begins. The construction advisor monitors construction and assists the LHA and Designer in resolving any problems. As the construction representative for DHCD, the construction advisor visits each project regularly and participates in weekly project meetings with the Designer, the project representative, the LHA contract officer, and the Contractor. If the LHA or Designer have questions about DHCD's construction administration procedures or requirements they should be directed to the DHCD construction advisor. The construction advisor can be reached at (617) 573-1150.

STEPS IN CONSTRUCTION

1

PRECONSTRUCTION PROCEDURES

Preconstruction is the period of time between the award of the construction contract and the start of actual construction. Many activities take place during this period which help construction proceed in a smooth and orderly manner.

LHA CREATES PROJECT FILE

The LHA is required, by statute, to keep most of the records associated with the construction project for six years after the date of final payment to the Contractor. To facilitate the filing and storage of these records, start a project file before construction begins. Create sections for all the records listed later in this handbook under the step "Final Completion Documents." As these records may be voluminous, allocate plenty of space for the project file.



CONSTRUCTION HANDBOOK

1 • PRECONSTRUCTION PROCEDURES

For projects requiring a resident coordinator, the LHA selects the resident coordinator from applications solicited, reviewed, approved, and ranked in priority order by the LRO.

The resident coordinator's job is to:

- ☐ work with the LHA contract officer to help the Contractor gain access to occupied apartments;
- ☐ notify residents as to when work will be performed in their apartments;
- ☐ advise residents of what the Contractor needs from the residents before work can begin, such as moving furniture, securing personal belongings, etc; and
- ☐ represent the interests of the LRO during construction work by bringing concerns to the LHA's attention, such as the starting time for construction work, the work schedule during holidays, and resident safety.

It is **not** the resident coordinator's job to:

- ☐ perform the functions of the Designer, LHA, or the project representative, such as construction inspection; or
- ☐ instruct the Contractor or any subcontractor. The resident coordinator communicates with the Contractor through the Designer via the LHA contract officer.

In addition, the resident coordinator is not responsible for residents' personal belongings while the Contractor works in an occupied apartment, nor is she responsible for the security of the Contractor's equipment or materials.

The resident coordinator works at least 20 but not more than 40 hours per week and is paid by the LHA at a rate of one and one half times the minimum wage as set forth in 760 CMR 10.08.

If a **PROJECT REPRESENTATIVE** (also called the clerk of the works) is required, the Designer and the DHCD construction advisor may be able to identify an appropriate candidate. If not, the Designer advertises the position. Because of the critical nature of the project representative's responsibilities, it is essential that the Designer fill the position before construction starts.

DHCD strongly recommends that the Designer hire a single project representative for the duration of construction. The establishment of working relationships, knowledge of problems and solutions encountered on the job, and general familiarity with the project are why continuity in the project representative position is important.

JOB DESCRIPTION. Since the construction activities are broad in scope and complex in nature, the project representative must have a comprehensive knowledge of construction methods, practices, and techniques. The job description should state that the project representative have field experience in all phases of construction or in the particular type of construction planned for the project.

LHA SELECTS THE RESIDENT COORDINATOR

(Modernization Jobs Only)

DESIGNER HIRES PROJECT REPRESENTATIVE

Specifically, the project representative is hired to:

- ☐ assist the Contractor's superintendent in understanding the intent of the Contract Documents;
- ☐ check that the work in progress conforms with the construction contract. Any deviation from the Contract Documents or approved shop drawings must be reported immediately to the Contractor's superintendent and the Designer;
- ☐ verify that all materials conform to the specifications and approvals;
- ☐ know the reference standards mentioned in the Contract Documents;
- ☐ evaluate recommendations made by the Contractor to the Designer;
- ☐ review the Progress Schedule for conditions likely to cause delays and immediately report such conditions to the Designer;
- ☐ keep an up-to-date Project Directory on the office wall;
- ☐ attend weekly field meetings and all special meetings;
- ☐ make note of all visitors, their affiliation, and reason for visiting the job site;
- ☐ accompany all visitors, including representatives from local, state, and federal agencies on tours of the work;
- ☐ be present at all testing procedures;
- ☐ maintain an orderly file of approved shop drawings and samples;
- ☐ write a detailed daily report;
- ☐ notify the Designer of materials delivered without shop drawing approval;
- ☐ notify the Designer when the Contractor's samples are ready for inspection;
- ☐ notify the Contractor's superintendent and the Designer of unacceptable work;
- ☐ review the Contractor's Detailed Schedule of Values with the Designer and the DHCD construction advisor;
- ☐ review the Detailed Application for Payment and make recommendations to the Designer and the DHCD construction advisor prior to the monthly requisition review meeting;
- ☐ sign-off on the Summary Application and Certificate of Payment;
- ☐ review all stored material for conformity with approved shop drawings;
- ☐ review all change estimates with the Designer and DHCD's construction advisor, and sign-off on all change orders;
- ☐ document with photographs any unanticipated problems during construction; and
- ☐ at times, perform the function of resident coordinator, for example, by coordinating access to occupied apartments.



CONSTRUCTION HANDBOOK

1 • PRECONSTRUCTION PROCEDURES

LIMITS OF RESPONSIBILITY. The project representative has **no authority** to:

- ☐ transmit either oral or written communications between the Contractor and the LHA;
- ☐ act in the capacity of the Designer;
- ☐ act in the capacity of the Contractor's superintendent;
- ☐ act in the capacity of the LHA contract officer or otherwise represent the LHA;
- ☐ give directions relative to job safety. If the project representative believes that the public safety is in jeopardy, she must notify the Designer immediately;
- ☐ issue directives on construction techniques, procedures, or scheduling;
- ☐ authorize deviations from the Contract Documents;
- ☐ approve submittals or shop drawings;
- ☐ conduct tests;
- ☐ assist the Contractor with actual work;
- ☐ accept or reject materials or workmanship;
- ☐ issue stop orders; or
- ☐ authorize payments.

RECORDS. It is important that the project representative's records be complete, orderly, and clearly written. These records become part of the permanent file of the LHA. The project representative's records should include all correspondence, daily reports, weekly meeting minutes, approved shop drawings and samples, the Contract Documents, change orders and the change order log, construction change directives, time and materials slips, clarification sketches, certificates for payment, verifying data for stored materials, and photographs.

THE DAILY REPORT. One of the project representative's major responsibilities is the preparation of the Daily Report. The report format is supplied by the Designer. At a minimum, the Daily Report should include the information shown in the sample in the Appendix. Every week, the project representative gives the Designer copies of the preceding week's daily reports and any relevant photographs. The Designer sends copies to the LHA contract officer and the DHCD construction advisor.

See Appendix C-1 for the Project Representative's Daily Report and Appendix C-2 for a Sample Project Representative's Daily Report

PHOTOGRAPHS. At the start of construction the Designer provides the project representative with a digital camera with a built-in flash. The project representative photographs all deviations from the Contract Documents such as the use of improper materials, improper installation or workmanship, vandalism, and concealed or unforeseen conditions. All photographs should be clearly identified and dated.

All Appendix forms are available on the DHCD web site www.mass.gov/dhcd

The duties and limits of authority of the project representative are more fully described in **MONITORING PUBLIC HOUSING CONSTRUCTION: A HANDBOOK FOR DHCD PROJECT REPRESENTATIVES.** Copies of this handbook are available free of charge from the DHCD Construction Management Unit. (617) 573-1165.

REVIEW AND APPROVAL OF PROJECT REPRESENTATIVE. The Designer reviews the salary requirements, references, experience, and availability of candidates with the DHCD construction advisor. DHCD's Director of Construction Management Unit approves the architect's recommendation in writing before the project representative is hired.

SALARY. The Designer is reimbursed by the LHA for the project representative's salary. Once DHCD has approved the salary, the LHA pays the Designer's invoices for salary reimbursement without further DHCD authorization. Any salary increases or reimbursement that exceeds the DHCD original approval must be approved in writing by DHCD. In special cases, the Designer may choose to pay the project representative more than the DHCD limits because of the expertise and experience of the particular individual. Payments in excess of DHCD approved salary must be paid for by the Designer.

REIMBURSEMENT FOR SALARY AND EXPENSES. The Contract for Designer Services states that the LHA reimburse the Designer for the project representative's salary, benefits, and insurance. The project representative is considered a regular temporary employee of the Designer and receives the same benefits as other employees of the firm. The only exception is vacation time.

VACATION TIME. Vacation time should not exceed two weeks a year, should be used in one week segments, and should be taken when construction activity is light. All parties, the Designer, LHA, and DHCD, should agree to the project representative's vacation schedule. The project representative may take her accrued vacation time in the form of payment any time after the end of the first year of employment. The LHA reimburses the Designer for this expense.

WORK SCHEDULE. The project representative is expected to be at the job site whenever the Contractor has work in progress. The project representative, therefore, may be required to work beyond the normal workday hours, on week-ends, and on holidays. The project representative may be entitled to compensation for any work beyond that called for in her employment contract with the Designer.

EXPENSES AND OVERTIME PAID BY THE CONTRACTOR. The Contractor must pay for travel expenses and overtime incurred by the project representative. The project representative incurs travel expenses when inspecting materials stored off-site. Overtime is paid at time-and-a-half for the base salary plus the cost of salary related benefits, such as health insurance, and F.I.C.A. taxes.

Every month the Designer pays the project representative for overtime and travel expenses and submits an invoice to the LHA. The LHA then sends an invoice to the Contractor for any such overtime and travel expenses. The Contractor reimburses the Authority promptly, so that the LHA can pay the Designer. If the need for the project representative to work overtime is unclear, the Designer should consult with the DHCD construction advisor before arriving at a final determination.



CONSTRUCTION HANDBOOK

1 • PRECONSTRUCTION PROCEDURES

The Designer organizes the Preconstruction Meeting so as to introduce the participants in the construction process to one another and review construction procedures. This is the time to discuss any unusual conditions that might affect the progress of construction and make all participants aware of any potential problems.

DESIGNER ORGANIZES PRECONSTRUCTION MEETING

ATTENDANCE. The Preconstruction Meeting is usually held at the LHA offices and is attended by the Designer, the LHA contract officer, the Executive Director, the LHA Affirmative Action Officer, the resident coordinator (modernization projects only), the DHCD construction advisor, the project representative, and the Contractor's project manager and project superintendent. The Designer should encourage technical consultants and engineers to attend the meeting also. Likewise, the Contractor should encourage subcontractors to attend.

RECORD KEEPING. The Designer records minutes of the meeting and distributes them to everyone in attendance.

AGENDA. The Designer conducts the meeting using an agenda similar to the one shown on the following page.

Once the Director of DHCD has validated the Owner-Contractor Agreement, the LHA issues the Notice to Proceed, which authorizes the Contractor to commence work. The Notice to Proceed is issued at the Pre-construction Meeting unless other arrangements have been approved by the Designer and DHCD.

ISSUE THE NOTICE TO PROCEED

*See Appendix C-3 for Sample
Notice to Proceed*

The Notice to Proceed includes:

- ❑ the starting date and the contract completion date for construction, and
- ❑ the names of the LHA contract officer and alternate contract officer.

The LHA sends three copies of the Notice to Proceed to the Contractor. The Contractor signs and dates two copies and returns them to the LHA. The LHA sends one signed copy to the DHCD construction advisor and keeps the other for its files.

*All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd*

Agenda for Pre-construction Meeting

1. Introductions

2. Review the duties and responsibilities of:

- ☐ DESIGNER
- ☐ Project Representative
- ☐ Engineers
- ☐ LHA Contract Officer and EEO Officer
- ☐ DHCD Construction Management Unit
- ☐ General Contractor
(Project Manager, Superintendent, and EEO Officer)
- ☐ Subcontractors
- ☐ Others as applicable

3. Review the following:

- ☐ Notice to Proceed
- ☐ Communications
- ☐ Resident coordination (modernization jobs)
- ☐ Weekly field meetings
- ☐ Project directory
- ☐ Safety, OSHA certification, clean-up, security
- ☐ Wage rates
- ☐ E.O 481, Affirmative Action, MBE/WBE monitoring
- ☐ Project sign
- ☐ Testing
- ☐ Posting permits
- ☐ Schedule of values and estimated payment schedule
- ☐ Applications for Payment
- ☐ Construction schedule and monthly updates
- ☐ Shop drawings, submittals, and distribution of approvals
- ☐ Substitutions
- ☐ As Built drawings
- ☐ Change orders and field orders
- ☐ Disputes
- ☐ Substantial Completion
- ☐ Final Completion



CONSTRUCTION HANDBOOK

1 • PRECONSTRUCTION PROCEDURES

The LHA organizes the groundbreaking ceremony to formally mark the start of construction. The ceremony will increase public awareness of the project and provides an opportunity for the LHA to acknowledge the efforts and contributions of its Board, staff members, and the local and state officials who have been part of the process.

ORGANIZE GROUNDBREAKING CEREMONY

NOTIFICATION. To maximize attendance, the LHA should send out invitations at least one month in advance. It is important to invite the state senator and representative from the LHA's district, the chief elected officials from the community, the sponsor agency, if applicable, and all others who have played a role in the project.

PUBLICITY. Notify the local media well in advance. Ask the Contractor to put up the project sign before the ceremony.

SUGGESTED GROUNDBREAKING PROGRAM.

- ☐ Invocation
- ☐ Introductory remarks by the Master of Ceremonies (usually the Chairperson or Executive Director of the LHA)
- ☐ Remarks by the Director of DHCD, or designee
- ☐ Remarks by the State Senator and Representative
- ☐ Remarks by a local municipal official
- ☐ Acknowledgment by the Master of Ceremonies of other persons who assisted in developing the project
- ☐ **Groundbreaking**

SAMPLE GROUNDBREAKING INVITATION

THE ENFIELD HOUSING AUTHORITY
and
THE UNDERSECRETARY OF THE
DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT
cordially invite you to attend
**groundbreaking ceremonies for Duffy Place,
a new elderly and family housing development**
funded by a grant from
THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT.
**The ceremonies will take place at 116 Kat Hillway
on Wednesday, February 15 at three o'clock**

2

CONSTRUCTION STARTUP PROCEDURES

Once the Contractor has received and acknowledged the Notice to Proceed, he surveys the site to verify the existing conditions shown in the plans and described in the specifications. **The Contractor must notify the Designer immediately of any deviations from the Contract Documents.**

SET UP OFFICE

The Contractor sets up a trailer or other suitable space to serve as the office for the project representative. This trailer accommodates a telephone, fax machine, file cabinet, desk, and storage space for record and shop drawings. This space should also be equipped with heat and air-conditioning and be lockable.

SET UP PROJECT DIRECTORY

See Appendix C-4 for a Sample Project Directory.

*All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd*

Within 14 days after receiving the Notice to Proceed, the Contractor must furnish a Project Directory to the Designer, the LHA contract officer, and the DHCD construction advisor. This directory should include the names of all participants in the construction, their affiliation, address, and telephone number. The following participants should be listed: the LHA contract officer, resident coordinator (Modernization and Redevelopment), DHCD's construction advisor, the Designer and engineers, the project representative, the Contractor, the subcontractors and material suppliers, and the building inspector.

CHANGES IN THE PROJECT DIRECTORY. If the Contractor changes subcontractors and/or materials suppliers, he must amend the Project Directory and distribute updated copies to everyone on the original distribution list.

COPIES OF THE PROJECT DIRECTORY. The project superintendent and the project representative each keep a copy of the Project Directory in their respective offices at all times. These copies include the telephone numbers of local emergency services, such as the police and fire departments, a local ambulance service, and a local hospital.

EMERGENCY PROCEDURES. The LHA must provide the local police department with the telephone numbers at which the Contractor can be reached in the event of an emergency.

CONTRACTOR PREPARES CONSTRUCTION PROGRESS SCHEDULE

PURPOSE OF THE PROGRESS SCHEDULE. At the start of construction, the Contractor must prepare a Progress Schedule. This schedule tracks the allocation of manpower and materials and is an important management tool. It allows the Contractor, the Designer, the LHA, and the DHCD construction advisor to monitor the progress of construction and establish progress payment schedules. It also provides a timetable for submittals, approvals, delivery of materials, and gives the anticipated completion date. The information on the schedule helps the LHA, the DHCD construction advisor, and the Designer evaluate time extensions if requested by the Contractor.



CONSTRUCTION HANDBOOK

2 • CONSTRUCTION STARTUP PROCEDURES

FORM OF THE PROGRESS SCHEDULE. The Contractor can present the progress schedule in the form of a Gantt (bar) chart or flow chart. The schedule shows on a timeline the activities of the various subcontractors in accordance with each section of the specifications in such a way that the LHA contract officer and Designer know when and for how long each subcontractor will be on the job and how her work fits into the overall construction work schedule.

SCHEDULING SUBCONTRACTORS. The larger subcontractors, such as plumbing, heating, and electrical, should be allotted more than one line, so that their various activities can be coordinated. This breakdown of work activities enables the Designer to identify certain critical points or milestones for each trade and anticipate when another major job section will begin.

REVIEW BY THE SUBCONTRACTORS. To insure the accuracy of the schedule, the Contractor should review the proposed schedule with each of the subcontractors before putting it into final form. The Contractor should analyze each subcontractor's comments or concerns and take into consideration how they relate to the coordination of the entire project. The Contractor can incorporate these concerns into the schedule.

DISTRIBUTION OF THE PROGRESS SCHEDULE. All major participants listed in the Project Directory receive a copy of the Progress Schedule. DHCD recommends that the Contractor also give the LHA contract officer a simplified version of the schedule so that she can tell the general public about the construction activity and when the project will be finished.

UPDATES OF THE PROGRESS SCHEDULE. After the initial progress schedule is completed, the Contractor must update it periodically to reflect changes in the actual progress of construction. DHCD recommends the schedule be updated monthly when the Contractor prepares the Application for Payment. The updated schedule allows all the participants to monitor the progress of the work and schedule their own activities accordingly.

The Contractor must give the Designer five copies of a detailed breakdown of the contract values. This breakdown, called the Schedule of Values, is the basis for evaluating the Contractor's requests for periodic payments, and must be discussed with and approved by the Designer before the first payment request is submitted.

DETAILED SCHEDULE OF VALUES. The Schedule of Values consists of two parts: The Detailed Schedule of Values and the Summary Schedule. On the Detailed Schedule the Contractor writes down the monetary value of each subcontractor's work. The Detailed Schedule includes a breakdown of specific activities within a definable area (e.g. wing, floor, building). Every line or work item should include its proportional share of the Contractor's overhead and profit. The information provided in the Detailed Schedule of Values is of considerable importance to the Contractor, because it becomes the basis of the Contractor's "pencil draft" of the Application for Payment. It is also of considerable assistance to the Designer.

See Appendix C-5 for a sample of a Progress Schedule

All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd

SCHEDULE OF VALUES

See Appendix C-6 for a sample Detailed Schedule of Values

All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd

See Appendix C-7 for a sample
Summary Schedule of Values.

All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd

SUMMARY SCHEDULE. This form gives a more general breakdown of the value of the work. All the components on the Detailed Schedule are added up and the total value written on the Summary Schedule. The Summary Schedule provides a line item for each section of the specifications. This schedule becomes the basis of the Contractor's Application for Payment (discussed later in this section).

VERIFICATION AND APPROVAL. Once the Designer and the DHCD construction advisor have approved the Schedule of Values it cannot be revised. If the Designer asks the Contractor to substantiate the values written on the Schedule of Values, the Contractor must do so. Since no request for payment can be approved until the Schedule of Values has been approved, it is to the Contractor's benefit to submit his schedule as soon as possible.

RECORD DRAWINGS

During the course of construction, the Designer may agree to deviations from the contract drawings for any number of reasons. To properly record these changes, the Designer gives the Contractor and subcontractors clear, unmarked drawings at the start of construction. They must record on these drawings the work as it is built, including any deviations and new work. Each change should be dated and initialed by the Contractor or subcontractor. The Designer or project representative periodically inspects these drawings and notes any discrepancies. At the end of construction these become the basis for the Record or As-built Drawings.

3

PROCEDURES DURING CONSTRUCTION

Once construction begins, the local building inspector and other local and state inspectors make periodic inspections to be sure that the project is being built in accordance with the applicable codes. During construction, the subcontractors of the major trades call the local inspectors to approve certain phases of their work.

RECORD KEEPING. After each phase of the work has been inspected, the appropriate inspector signs the building permit. The Contractor should tell the project representative when an inspection is scheduled so that she can be present during the inspection. When the inspector visits the site, the project representative notes the visit and record the inspector's comments in the Daily Report. In addition, the project representative should make a notation on the drawings indicating what areas are approved, by whom, and the date.

INSPECTIONS BY LOCAL AGENCIES AND INSPECTORS

CHANGE REQUESTS FROM LOCAL INSPECTORS OR AGENCIES. If an inspector or local agency asks for a change, the request must be made in writing to the Contractor and should include a detailed explanation of the reason for the request, citing the specific code violation. If the request entails a change in the Contract Documents, the Contractor forwards the request to the Designer. The Designer should immediately review the request with the DHCD construction advisor and the LHA contract officer to determine what action, if any, is appropriate. After consulting with the DHCD construction advisor, the Designer may decide to prepare a Proposal Request and issue a Change Order or Supplemental Instructions.



CONSTRUCTION HANDBOOK

3 • PROCEDURES DURING CONSTRUCTION

Throughout construction the Contractor must maintain at the site a copy of each of the following: the Contract Documents (which include clarification sketches, approved shop drawings, change orders, and supplemental instructions), correspondence, product data and samples, the progress schedule, the project directory, and the approved wage rate tables.

CONTRACTOR'S ADMINISTRATION RESPONSIBILITIES

WAGE RATES. The Massachusetts Department of Labor and Workforce Development sets the minimum hourly rates of compensation for all workers and apprentices on state-funded projects. These rates are included in the Contract Documents for each project and must be posted by the Contractor at the project site at all times. The Contractor is required to submit weekly certified payroll reports to the LHA. The LHA contract administrator should maintain a file of these reports. On occasion, representatives of the Attorney General's Fair Labor and Business Practices Division will visit the project to verify that the Contractor and subcontractors are paying the required wage rates. This file will help answer any issues that the Attorney General's inspectors may have. Any questions regarding wage rates should be directed to the Attorney General's Office at (617) 727-3477.

AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY REQUIREMENTS. According to the Contract Documents, the Contractor must not discriminate in the selection or retention of subcontractors or in the procurement of materials or rental of equipment on the basis of race, color, religion, creed, national origin, age, or sex. In addition, he must take affirmative action to identify and negotiate with qualified minority and female subcontractors and suppliers to maintain at least the contractually established minimum number of minority and female workers in each trade. If the Contractor uses referrals to meet these minority and female hiring requirements, he should keep records of the agencies and organizations contacted. The LHA and DHCD Equal Employment Opportunity officers may ask to see these records.

WEEKLY MANPOWER REPORT. To comply with affirmative action requirements the Contractor must file a Contractor's Weekly Manpower Report with the LHA and the DHCD Affirmative Action Office every week. This report lists the total number of employees on the job the previous week and gives a trade-by-trade breakdown of minority and female personnel. The Contractor is responsible for insuring that the filed and non-filed subcontractors comply with the Affirmative Action requirements and that they submit all forms promptly to the Contractor.

See Appendix C-8 for the Contractor's Weekly Manpower Report Form

QUARTERLY WORK FORCE PROJECTION. The Contract Documents require that once every quarter the Contractor submit to the LHA's Equal Employment Opportunity (EEO) Officer a table showing the projected workforce for the upcoming quarter by week for each trade. Work cannot proceed unless both the LHA EEO Officer and the DHCD EEO Officer have received these quarterly projected work force tables.

See Appendix C-9 for the Quarterly Projected Work Force Table

*All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd*

EEO REVIEW AND APPROVAL. To insure the Contractor complies with affirmative action and equal opportunity requirements, the LHA's EEO officer reviews the Contractor's Application for Payment for affirmative action compliance before approval. The LHA EEO officer determines whether or not the Contractor and subcontractors have submitted all required reports and information and whether they are in compliance with the affirmative action requirements in the contract. If the Contractor is delinquent, the LHA EEO officer may require that the payments be reduced until the Contractor complies with all affirmative action requirements.

MBE/WBE REQUIREMENTS. For contracts that have Minority-owned Business Enterprise (MBE) and/or Women-owned Business Enterprise (WBE) requirements, the Contractor submits documentation that demonstrates his intent to subcontract for the specified dollar amount with an MBE or WBE company certified by the State Office of Minority and Women Business Assistance (SOMWBA). If, at any time during construction, the Contractor wishes to change MBE or WBE subcontractors, he must obtain approval from the DHCD Office of Affirmative Action. Quarterly the Contractor must submit an Affidavit of Payments to Minority/Women Business Enterprises to DHCD's EEO Officer.

See Appendix C-10 for the Contractor's Affidavit of Payments to Minority Business Enterprises

All Appendix forms are available on the DHCD web site www.mass.gov/dhcd

WEEKLY FIELD MEETINGS

The purpose of these meetings is to monitor the progress of construction, to coordinate upcoming work, and to resolve any problems, questions, or specific conditions relative to the project or the contract documents. Field meetings are *usually* held every week during construction. Typically, these meetings take place on the construction site in the project representative's office.

PARTICIPANTS. The LHA contract officer, resident coordinator (if one is required), DESIGNER, project representative, DHCD construction advisor, Contractor, and any subcontractors or engineers whose work is in progress should attend these meetings. Occasionally, employees of the Sponsor Agency or its vendor may wish to visit the site or attend a weekly meeting. The LHA contract officer coordinates with the Sponsor Agency or vendor to arrange these visits.

MEETING SCHEDULE. A specific time and day for the meetings was established at the Preconstruction Meeting to insure that all parties can attend each meeting. On small modernization jobs or those that are completed in a short period of time, field meetings should be held when deemed appropriate by the Designer.

MEETING MINUTES. The Designer is responsible for preparing the agenda, conducting the meeting, and preparing the minutes. The agenda includes old business, new business, and field observations. The Designer signs and promptly distributes copies of the meeting minutes and an up-to-date Change Request log to all meeting participants. This allows everyone an opportunity to study and resolve issues before the next meeting. The Designer should also bring extra copies of the previous meeting's minutes to use as part of the agenda and mail a copy to the DHCD project manager.

See Appendix C-11 for a sample format for the Designer's Minutes of the Meeting

All Appendix forms are available on the DHCD web site www.mass.gov/dhcd



CONSTRUCTION HANDBOOK

3 • PROCEDURES DURING CONSTRUCTION

Each month one meeting is designated to review the pencil draft of the Contractor's Detailed Application for Payment and the Designer's Change Request Log which lists the outstanding Change Requests, Change Estimates, Change Orders, and their respective status. The participants also review the Submittal Log to ensure that all outstanding items receive formal approval. (The submittal log is described later under "Submittals".)

*See Appendix C-12 for the Detailed Application for Payment
See Appendix C-13 for the Change Request Log.*

*All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd*

It is important to maintain clear and orderly lines of communication throughout construction. Clear lines of communication help prevent misunderstandings, confusion, delays, and disputes.

COMMUNICATION AND SUPERVISION

All the Contractor's correspondence or questions must be directed to the Designer. The Contractor should not deal directly with the LHA or DHCD except for requests for administrative conferences. (See "Work in Dispute" for more on administrative conferences.)

All LHA and DHCD construction questions or observations must be directed to the Designer who communicates them to the Contractor. Because the Contractor is responsible for the work of all subcontractors, questions and observations concerning the work of any subcontractors should be passed through the Designer to the Contractor. The Contractor is solely responsible for any directions or communications to the subcontractors. The subcontractors must communicate with the LHA or DHCD staff only through the Contractor.

Courtesy copies of all correspondence between the Designer and Contractor should be sent by the writer to the LHA contract officer, the DHCD construction advisor, and the project representative.

To summarize the general rules for orderly communications:

- ❑ only the Designer directs or instructs the Contractor;
- ❑ only the Contractor directs the subcontractors;
- ❑ subcontractors direct all correspondence to the Contractor; and
- ❑ courtesy copies of all correspondence between the Contractor and the Designer should be sent to the LHA contract officer, the DHCD construction advisor, and the project representative.

SECURITY. The Contractor is responsible for the security of the construction site including all materials and property on the site. Each subcontractor is responsible for securing all her tools and equipment. Common sense dictates that the Contractor take additional security precautions in high risk areas or on days like Halloween or New Year's Eve.

SAFETY. Similarly, the Contractor is responsible for initiating, maintaining, and supervising all safety on the construction site. The Contractor is also responsible for taking all reasonable precautions to protect people, materials, equipment, and property on and near the job site. To maintain project safety, the Contractor should keep the premises clean of debris, materials, or rubbish.

TESTING PROCEDURES

During construction, the Designer may hire an independent testing laboratory to determine whether various materials to be used in the project, such as fill, concrete, masonry, steel, roofing, carpet, and windows, meet the performance requirements called for in the Contract Documents. The Designer and the DHCD construction advisor determine the extent of testing necessary. The Designer coordinates the tests. In addition, the Designer arranges and coordinates any special testing requested by DHCD, such as air and water infiltration, infrared scan, etc.

To select a testing laboratory the Designer solicits proposals from at least three independent laboratories and sends her recommendation to the DHCD construction advisor. The DHCD construction advisor will solicit approval from the appropriate person at DHCD and notify the Designer of the decision. The cost of testing is a reimbursable expense to the Designer.

ON-SITE TESTING. The Designer or the project representative oversees all on-site testing. When testing is to be done on-site, the Contractor gives the project representative 24 hours notice before he installs or covers any work that may have to be tested as specified in the Contract Documents. While the Designer or project representative determines the area for testing, the exact location and number of tests is generally determined by the testing laboratory. All samples should be representative of the work in progress.

OFF-SITE TESTING. When materials located off-site must be tested and approved prior to shipment, the Contractor should give the Designer ample notice. For example, when gravel samples must be approved by the Designer before delivery to the site, the Contractor tells the Designer the location of the gravel pit. The project representative keeps the delivery slips of all approved tested materials, as a record of the place of origin and site destination. The testing laboratory should send its reports directly to the Designer, the engineers, the project representative, the Contractor, and the DHCD construction advisor. When the project is complete the project representative turns over his copies of test reports to the LHA as part of its permanent project file.

ADDITIONAL TESTING. The Designer may require additional testing on work already in place. The DHCD construction advisor is notified by the Designer of any adverse test findings. The Contractor must pay for any tests on materials which fail to meet the performance standards established in the Contract Documents. If the materials meet the performance standards, the cost of testing is a reimbursable expense to the Designer. Similarly, if testing is undertaken for the Contractor's own interest, the Contractor is responsible for coordinating with the Designer and for paying all test costs.



CONSTRUCTION HANDBOOK

3 • PROCEDURES DURING CONSTRUCTION

Before the Contractor and subcontractors can purchase and/or install certain items, they must submit shop drawings, product data, or samples of the items to the Designer for approval. Those items for which Designer approval is required are identified in the Contract Documents. If acquiring these items requires a long lead time, the Contractor should plan to make these submittals to the Designer promptly so that approvals do not delay delivery.

The Contractor must review and sign all subcontractors' submittals indicating their conformance with the Contract Documents before forwarding them to the Designer for review.

DESIGNER REVIEW AND APPROVAL. The Designer is solely responsible for the review and approval of submittals. Although it may be beneficial to have submittals reviewed by the project representative before approval by the Designer, the final review and approval must be done by the Designer.

SUBMITTAL LOG. The Designer maintains a current record of when submittals and resubmittals are received, returned, and approved. This log is reviewed periodically at job meetings to encourage timely submissions and approvals.

DESIGNER'S ACTION ON SUBMITTALS. When the Designer receives the Contractor's submittal, she should review the submittal right away or send it to the appropriate engineer for prompt review. When a submittal contains only a few items, the Designer or engineer can usually check the items within a week. If the submittal contains more than a few items, the Contractor sends a written transmittal indicating the order in which the items are to be reviewed. The Designer is required by law to render a decision on the submittal within thirty (30) days after receiving a written submission.

SHOP DRAWINGS SUBMISSION. The Contractor submits to the Designer one legible, reproducible transparency and at least two blackline prints of each shop drawing. If the shop drawing requires the approval of an engineer, the Contractor should submit three prints. The Designer notes receipt of the drawing in the Submittal Log. The Designer marks the prints and the original, indicating her action.

SHOP DRAWING APPROVAL. If a shop drawing is approved, the Designer returns one print and the transparency to the Contractor. The Contractor then provides prints to appropriate members of his staff and to those subcontractors affected by the drawing. Within ten (10) days after receiving an approved drawing, the Contractor submits to the Designer four prints made from the transparency, showing the "Approved" stamp. The Designer keeps two prints and distributes one each to the project representative and the LHA contract officer.

SUBMITTALS

See Appendix C-14 for the Submittal Log

All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd

SHOP DRAWING DISAPPROVAL. If a shop drawing is disapproved, the Designer promptly returns all prints and the transparency to the Contractor with a full explanation of the reasons for disapproval. The Contractor then obtains the necessary material or does the work needed to make the shop drawing approvable. If there is a difference of opinion between the Designer and the Contractor about what is acceptable, they should attempt to resolve the difference(s). If they are not successful, the Contractor has the option to appeal to DHCD. This procedure is covered later under "Work in Dispute."

SHOP DRAWING REVISION. If the shop drawing is marked "Revise and Resubmit," the Designer returns all prints and the transparency to the Contractor. The Contractor should immediately make the appropriate changes and resubmit it using the process described above.

PRODUCT DATA. Product data is processed in the same manner as shop drawings, but the Contractor submits seven copies of the data to the Designer. Once the data has been approved by the Designer and/or the engineers, the Designer sends three copies back to the Contractor, keeps two copies, and distributes the other two to the project representative and the LHA contract officer.

PRODUCT SAMPLES. The Contractor must provide two identical examples of all product samples. The Contractor should coordinate the review of samples with other submittals. For example, carpet samples should be submitted along with base molding samples. When color samples are to be reviewed, the Designer may require that all color samples be submitted at the same time so that the complete color schedule can be coordinated and reviewed with the LHA and/or the Sponsor Agency. The Designer has the right to request samples from the Contractor even if they are not specifically called for in the Contract Documents.

SUBSTITUTIONS In preparing the construction specifications, the Designer may have specified materials either by requiring the use of specific proprietary items, by stating performance criteria, or by listing name brands. *Only when name brand products have been specified are substitutions permitted.*

PROPRIETARY SPECIFICATIONS. By specifying a proprietary item, the Designer has concluded and the LHA Board has agreed that only one manufacturer produces a product that meets the specific requirements of the LHA. The Contractor must use that product.

PERFORMANCE SPECIFICATIONS. By stating performance criteria, the Designer has left it up to the Contractor to choose a product(s) that meets the criteria. The Designer must approve of the Contractor's selection. The Designer must be able to supply the Contractor with the names of at least three products which meet the criteria, should the Contractor request the Designer input.

NAME BRAND SPECIFICATIONS. The Designer specifies name brands to indicate her preference, based on her knowledge and experience. The Designer lists at least three name brands and the product or model numbers for the required items.

Specification by name brand suggests that the Contractor use one of the named products because the Designer has already approved of its use. However, substitutions are permitted when name brands are specified and **only** when name brands are specified. Such substitutions are called "equals" and may only be used after approval by the Designer and DHCD.



EQUALS

EQUALS APPROVALS. When requesting approval of an equal, the Contractor must write a transmittal that clearly indicates that he is submitting the product as an equal. It is the Contractor's or subcontractor's responsibility to prove that the substitution is equal to what has been specified by the Designer. In order to prove that the item is an equal, the Contractor is required by law to demonstrate that the item is equal in quality, durability, appearance, strength, design, and performance to the originally specified item. To do this, the Contractor must provide the Designer with a complete written analysis including all technical characteristics and pertinent information about the originally specified item as well as about the substitute.

If the substitution is acceptable to the Designer, she sends a written recommendation to the DHCD construction advisor. The DHCD construction advisor then solicits written approval from his supervisor. The Designer must have written authorization from DHCD, obtained through the DHCD construction advisor, before authorizing any substitutions. The Designer authorizes the substitution by executing an Architect's Supplemental Instructions form.

EQUALS DISAPPROVAL. If the Designer determines that the product is not equal, it is returned to the Contractor with a letter that describes the reasons for disapproval. If the Contractor disputes the Designer decision, he can appeal to DHCD in accordance with the procedure described later under "Work in Dispute."

EQUALS COORDINATION. Whenever a change is caused by the use of an equal, the Contractor must bear full responsibility for all costs relating to the change and for the performance of the substitution. This means that the Contractor pays for **any** modifications required because of the substitution of the equal. For this reason, the Contractor should carefully consider how the equal will impact other elements of the project. The Contractor must secure the original guarantees required by the Contract Documents and any additional warranties needed to ensure adequate performance.

The Contractor must make the request for an equal at least 120 calendar days prior to incorporating the product into the project. If the Contractor wishes to use an equal without giving 120 days notice to the DESIGNER, or if one of the name brand items listed in the specifications is not readily available, the Designer and DHCD may be able to accommodate the Contractor. Under no circumstances will an equal be considered if the Contractor has been negligent in obtaining the specified item. The Contractor must bear all costs for delays caused by tardy submissions.

INTERPRETATION OF THE DOCUMENTS

The Designer is charged with interpreting the Contract Documents. Whenever the Contractor has a question about the meaning or intent of the Contract Documents, the Designer must give the Contractor a timely response. Most of the time these questions can be answered at the weekly job meetings. If a question requires further study by the Designer or engineers, the Designer should make every effort to provide an interpretation at the next weekly job meeting. The Designer notifies the Contractor, project superintendent, project representative, and DHCD construction advisor of any such interpretations and includes them in the minutes of the meeting.

If the Contractor wants a written clarification, he must put the question in writing. This is often called a **Request for Information (RFI)**. When the Designer gets a RFI, she should respond as quickly as possible, but not later than 30 days after receiving the inquiry. If necessary, the Designer advises the Contractor in writing if she needs more than 30 days to respond. If the Designer does not respond within 30 days, or the Contractor does not agree with the interpretation, the Contractor may ask DHCD to resolve the problem, as discussed later in this chapter under "Work in Dispute". It should be noted that the Designer decision with regard to aesthetic issues is final.

If the Contractor disagrees with the Designer response, or does not ask for an interpretation, but proceeds with the work anyway, the Contractor is not entitled to any additional compensation for the work performed and will be responsible for any corrective work, if required. In other words, the Contractor proceeds at his own risk if he chooses to ignore the Designer.

CHANGES TO THE CONTRACT DOCUMENTS

In almost every construction project circumstances arise that require changes to the Contract Documents. These changes may be due to unforeseen conditions, design modifications, or changes in details or materials. These changes may be suggested by the Designer, the Contractor, DHCD construction advisor, or the LHA contract officer. Changes in the Contract Documents are made by executing Change Orders or by having the Designer issue a letter Authorizing Minor Changes in the Work.

CHANGE ORDERS are required when there is to be a change in the contract sum, a change in the completion date, or a change in the design intent (*i.e.*, scope of work and/or materials).

An **Authorization for Minor Change in the Work** is used when the change is minor (such as shifting the location of a door a few inches before the wall is framed), when the change is a substitution, or when the change does not require a Change Order.

Once executed, both Change Orders and Authorized Minor Changes become legally binding parts of the Contract Documents. Note that Field Orders are no longer used, only Change Orders or Authorized Minor Change letters.

Timely decisions and the prompt preparation, processing, and approval of Change Orders and Authorized Minor Changes serve to keep disruption of the job and cost increases to a minimum. This generally requires that the activities necessary to process a Change Order, including LHA board approval, all occur within 30 days.



CONSTRUCTION HANDBOOK

3 • PROCEDURES DURING CONSTRUCTION

AUTHORIZED MINOR CHANGES IN THE WORK. If the Contractor, after discussing the proposed change with the Designer, verbally agrees with the Designer that the change does not require a change in the contract sum, the completion date, or the design intent, the Designer prepares an letter Authorizing a Minor Change in the Work.

See Appendix C-15 for sample Architect's Authorization of Minor Changes in the Work letter

The Designer should confer with the LHA contract officer, and the DHCD construction advisor before sending this letter. Since Authorized Minor Changes are used only for minor changes that do not affect the contract sum or completion date, a vote of the LHA board is not required.

All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd

CHANGE REQUESTS. If a Change Order is required, the Designer prepares a Change Request letter. The Change Request letter includes a complete description of the proposed change, and may accompany a dated, clarification sketch (with the Designer's stamp) showing the materials to be used or revised construction details. Change Requests and clarification sketches are numbered sequentially and recorded in the Change Request Log.

See Appendix C-16 for a Sample Change Request

See Appendix C-13 for the Change Request Log.

CONTRACTOR PREPARES CHANGE ESTIMATE. The Contractor prepares a Change Estimate in response to the Designer's Change Request.

The Change Estimate provides detailed information about the proposed cost and time extension, if any. The cost of the proposed work may be determined by unit price, lump sum, or, as a last resort, on a time and materials basis. Copies of the Change Estimate are sent to the Designer, the LHA contract officer, the DHCD construction advisor, and the project representative. As soon as the LHA contract officer receives the Change Estimate, she should identify the availability and source of funds and seek approval from the DHCD project manager.

See Appendix C-17 for a sample Change Estimate.

UNIT PRICE CHANGE ESTIMATE. The Contractor prepares a Change Estimate based on unit prices when the proposed work involves any item listed in the Unit Price section of the specifications. All Change Estimates involving unit prices must be calculated using the specified values which already include overhead, profit, bonds, and insurance.

Unit prices are sometimes used to deal with changed conditions involving issues such as unanticipated soil conditions when the full extent of the extra work cannot be readily determined before the work begins.

LUMP SUM CHANGE ESTIMATE. In preparing a Change Estimate based on a lump sum, the Contractor estimates the materials, labor, and equipment rental required by the Change Request. If any of the work is unit price work as described above, it must be shown separately from the other work. This is because the Contractor may add the percentage established in the specifications for overhead and profit to the lump sum work but not for any work based on unit prices.

TIME AND MATERIALS CHANGE ESTIMATE. In rare instances, Change Estimates may be calculated on a time and materials basis. Typically, this is done when the extent of the work cannot be readily determined, unit prices are not provided, the Designer and the Contractor cannot agree on a lump sum amount, or in cases of extreme urgency. In such cases, the Contractor will be compensated for the actual cost of materials, labor, and rental equipment, plus the percentage for overhead and profit established in the Contract Documents. The project representative monitors this work as described later under "Notification of the Project Representative" and "Documentation".

TIME EXTENSIONS AND CHANGE ORDERS. As part of the review of each proposed Change Order, the Designer must determine how the proposed change will affect the completion date established by the Contract Documents. If the Contractor requests a time extension, he must explain how the change will affect the date of substantial completion. This explanation should refer to the Progress Schedule which was submitted at the start of the job.

Sometimes construction may be delayed because of circumstances beyond the control of the Contractor - such as strikes, or unusually severe weather. If an uncontrollable event occurs, the Contractor must notify the Designer of the delay within twenty days after its occurrence. As with any request for a time extension, the Contractor should thoroughly document how the uncontrollable event affected the completion date. Requests for time extensions should be reviewed and addressed in a timely manner and should not be held until the end of the job.

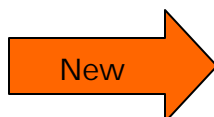
NOTIFICATION OF SPONSOR AGENCY. For the construction of Chapter 689 projects, Chapter 167 projects, and Chapter 667 Congregate projects, if the proposed Change Order involves a change in the functional aspects of the building, the LHA contract officer should notify the sponsor agency of the proposed Change Order and solicit the sponsor's input. If the proposed Change Order involves a change in the completion date, the contract officer should bring this fact to the attention of the sponsor agency. The contract officer should alert the sponsor agency to possible delays even if no Change Order has been proposed.

See Appendix C-18 for a copy of
the Change Order Form.

All Appendix forms are available on
the DHCD web site
www.mass.gov/dhcd

DESIGNER DECIDES TO ISSUE CHANGE ORDER. If the Designer agrees with the Contractor's Change Estimate, and if the submitted documents are acceptable or require only minor modifications, the Designer should prepare a Change Order form promptly. If no agreement can be reached, the Designer prepares a Construction Change Directive as described later.

PROCESSING CHANGE ORDERS. The Designer keeps a copy of the proposed Change Order and circulates 1 signed copy, including all supporting documentation, among the Contractor, LHA contract officer, and DHCD construction advisor for signatures. The signed copy is returned to the Designer.



DHCD CHANGE ORDER REQUIREMENTS

COVER LETTER. After receiving the signed copy, the Designer prepares a cover letter to the LHA Board explaining:

- ☐ who requested the change;
- ☐ why the change was necessary;
- ☐ what method was used to establish the cost of the Change Order (lump sum, unit prices, or time and materials);
- ☐ how the time extension, if any, was determined; and
- ☐ a statement that the Change Estimates have been reviewed and that the costs and any time extension are fair and equitable.

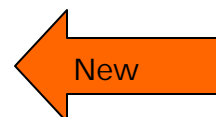
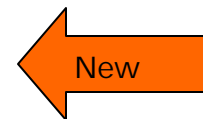
The Designer sends the cover letter and the signed original of the proposed Change Order to the LHA Board with the following supporting materials:

- ☐ the Change Request, including all drawings or sketches, instructions, and product data;
- ☐ photographs that illustrate the Change Order work;
- ☐ all Change Estimates from the Contractor and any subcontractors, which document how the amount of the change or time extension was determined;
- ☐ any time and material slips; and
- ☐ all other correspondence pertinent to the proposed Change Order.

VOTE BY THE LHA BOARD. Because the LHA must vote to approve each Change Order, the Designer should submit any proposed Change Orders in time to be included on the agenda of the next scheduled LHA board meeting. As discussed earlier, prompt processing of Change Orders is critically important. This means the LHA may need to schedule a special meeting to approve proposed Change Orders.

DHCD APPROVAL. All Change Orders require an LHA Board vote. If the Change Order is less than or equal to 5% of the original construction contract or is less than \$5,000, whichever is less, and the cumulative total of change orders is less than 5% of the original construction contract, then the DHCD construction advisor's signature is the only DHCD approval required. Change Orders that do not meet these criteria require the approval of the DHCD Construction Management Director. In these cases, e-mail, fax or mail one copy of the Change Order along with supporting documentation to DHCD (Boston).

DISTRIBUTION OF CHANGE ORDERS. After DHCD (either the construction advisor or the Construction Management Unit Director, depending on the size of the Change Order) has approved the Change Order, DHCD will return one copy of the signed cover sheet to the LHA. The LHA should distribute copies to the Designer, the Contractor, and the project representative. Only after the Contractor has received a copy of the approved Change Order can he include a request for payment with the monthly Application for Payment. Change Orders that have not been approved by all parties, including DHCD, cannot be submitted for payment.



*See Appendix C-19 for
the Construction
Change Directive form.*

*All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd*

CONSTRUCTION CHANGE DIRECTIVE. If work needs to be done but the Contractor and DESIGNER cannot agree on whether the work is beyond the scope of the contract or cannot agree on the dollar value of additional work or on the amount of time required to perform the work, the Designer should prepare and sign a Construction Change Directive (CCD). A CCD should also be used when the full scope of the work cannot be ascertained and the extra work must proceed. The CCD outlines the scope of work, the dollar upset limit, procedures that may be necessary to differentiate contract work from CCD work, and instructions regarding any inspections by the project representative. CCDs are normally prepared on a unit price basis or on a time and materials basis. The CCD also requires the signatures of the LHA contract officer and the DHCD construction advisor, as well as approval by DHCD Construction Management, Unit Director. The signature of the Contractor is not required.

The Contract Documents require the Contractor to perform the work as directed by the Designer via a fully executed CCD. However, if the Contractor still disagrees with the Designer about the scope of the work, the dollar value of the work, or the time needed to complete the work, he may perform the work under protest. This process is described in detail later under "Work in Dispute."

NOTIFICATION OF THE PROJECT REPRESENTATIVE. Before the Contractor goes ahead with any CCD work, he must notify the project representative every day of his intent to do such work to permit proper monitoring. If the Contractor does not notify the project representative, the Designer may refuse to approve payment for work not monitored by the project representative.

DOCUMENTATION. As the CCD work proceeds, the project representative keeps a daily record of the actual labor and materials used or removed. In addition, the Contractor prepares daily slips documenting the work done, which slips the project representative signs, acknowledging that the work was done. These slips, as well as invoices for material and equipment and the CCD itself, will become part of a Change Order.

PAYMENT. No payment can be made from a CCD. The Contractor can only make an Application for Payment for work that is listed on an approved Change Order. Therefore, it is essential that all CCD work be processed into a Change Order as soon as possible.

CONVERTING A CONSTRUCTION CHANGE DIRECTIVE TO A CHANGE ORDER. After the Contractor completes the extra work approved by a CCD, the Change Estimate and copies of time and material slips signed by the project representative are sent by the Contractor to the Designer. The Designer reviews these with the LHA contract officer, the DHCD construction advisor, and the project representative to verify that the labor and material costs accurately reflect the work described in the CCD. As part of this evaluation, the Designer consults with the appropriate engineer(s). If everything is in order, the Designer prepares a Change Order as described earlier. The Change Estimates and time and material slips are attached as backup.



CONSTRUCTION HANDBOOK

3 • PROCEDURES DURING CONSTRUCTION

WORK IN DISPUTE

During construction the Designer and Contractor may disagree as to the scope or the acceptable quality of the work required by the Contract Documents. Or they may agree that the work which the Contractor is being asked to perform is extra work (that is, work that is beyond the scope of the Contract Documents) but be unable to agree on the dollar value of the work. Or they agree on the dollar value of the extra work but not agree on the time required to do the work.

REQUEST FOR CHANGE ORDER. In any of these instances the Contractor shall submit such claim or dispute to the Designer in the form of a Change Order request, for her initial review and consideration, subject to further appeal to DHCD as noted below

CONTRACTOR APPEAL. According to the Contract Documents, the Contractor has 21 calendar days from the date he receives the Designer's response to the Change Order request to appeal this response to DHCD. (If no response is forthcoming from the Designer within 30 days after receipt of the Contractor's Change Order request, the 21 day time period begins to run at the end of 30 days from the day the Designer receives the Contractor's request.) The appeal to DHCD must be made in writing directly to the Administrator of the Housing Division by certified mail, (100 Cambridge St, Suite 300, Boston, MA 02114) copy to the Designer and LHA. Failure to appeal within the 21 days will result in the Designer's decision becoming final and binding on the Contractor and LHA. Likewise, the Designer's decision is final if the matter in dispute relates to aesthetic issues, and thus no appeal can be made.

NOTE: The Contractor is the only entity that may submit a Change Order request to the Designer. Subcontractors must act through the Contractor. Subcontractors cannot request a Change Order directly from the Designer. In a like manner, the Contractor, not the Subcontractor, is the proper party to appeal the Designer's decision.

Even if the Contractor has appealed the Designer's decision, DHCD recommends that the parties attempt to resolve the dispute via an informal conference as noted below.

INFORMAL CONFERENCE. If a dispute cannot be resolved by the Designer, Contractor and DHCD construction advisor in the field, either the Designer or the Contractor may request an informal meeting to review the matter with the DHCD construction advisor's supervisor. If a Construction Change Directive has been issued relating to the work in dispute, the Contractor continues to proceed with the work as directed. A request for an informal conference does not relieve the Contractor of his obligation to perform the work as directed by the Designer. A request for an informal conference does not change the period of time the Contractor has to appeal the Designer's response to DHCD. The Contractor has only 21 days from the date of the Designer's response to appeal to DHCD.

Because these meetings are informal, no minutes are taken and legal counsel need not be present. The parties do not waive their rights to an appeal to the Administrator because of this meeting. If an agreement is reached and a Change Order is warranted, the Designer prepares a Change Order, which reflects the change in the contract sum and/or the completion date. If the Change Order covers work which is also covered by a Construction Change Directive, refer to the Directive specifically in the Change Order.

APPEAL TO ADMINISTRATOR. If the previous attempts to resolve the matter fail, the Contractor may appeal the Designer's response to the Administrator as noted above. The Contractor should request a formal administrative conference. Either the Administrator or her designee will conduct the conference. A request for a formal administrative conference does not relieve the Contractor of his obligation to perform the work as directed by the Designer.

At a formal administrative conference both the Contractor and the LHA may be represented by legal counsel and minutes are taken. During the conference each party will be given an opportunity to present its views. The Administrator or her designee will issue a written decision within 30 working days after the end of the conference. This decision is considered final under the provisions of the Contract Documents, but the matter may be appealed to a court of competent jurisdiction if one of the parties believes the decision is not consistent with applicable law.

PAYMENTS TO THE CONTRACTOR

*See Appendix C-12 sample -
Detailed Applications for Payment*

*See Appendix C-20 sample -
Detailed Application for Payment
for Change Orders*

*All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd*

State law allows contractors to be paid for work completed in the previous month and for certain materials stored on or off site. (Stored materials are discussed later.)

PENCIL DRAFT. Every month, at the field meeting the week before the monthly requisition meeting, the Contractor submits to the project representative a "pencil draft" of the Detailed Application for Payment. The Detailed Application includes payment requests from all the subcontractors and a listing of all approved Change Orders. Copies are distributed to the Designer, the DHCD construction advisor, and the LHA contract officer, all of whom should be present at the meeting.

REVIEW PROCESS. The project representative and the project superintendent review the work completed in the last month and verify the dollar value. In addition, they verify the quantity of materials stored on-site and off-site, if this has not already been done. The Designer checks to see that the total requested fairly represents the percentage of work completed and that a sufficient amount of money will remain in the contract to finish the work after this payment is made. The Designer, the Contractor, the project representative, the LHA contract officer, and the DHCD construction advisor tour the project and look at the work completed in the last month. During this tour the project representative and Contractor discuss any reservations they have about any line items in the pencil draft. The Designer reviews these concerns at the meeting and makes appropriate adjustments.

The monthly requisition meeting is also the time when the Contractor advises the Designer and the DHCD construction advisor that he believes a subcontractor has requested an inappropriate amount of payment. It is important for the Contractor to point this out since the Contractor is required to include all payment requests from his subcontractors on his Application for Payment.

DESIGNER REVIEWS THE PENCIL DRAFT. Since it is the Designer's responsibility to verify and approve the Application for Payment, she should be sure the Contractor has made the following deductions:

- ❑ An amount sufficient to cover the fair value of the LHA's existing claims against the Contractor for defective or nonconforming work;
- ❑ An amount sufficient to cover any properly filed demands for direct payment from the filed subcontractors; and
- ❑ A five percent (5%) retention of the total amount of work completed and stored. This retention is in addition to the money already being withheld for defective or nonconforming work.

CONTRACTOR FILLS OUT THE SUMMARY APPLICATION FOR PAYMENT. After the Designer has approved the pencil draft, the Contractor adds up the detailed values approved by the Designer, transfers them by category to the Summary Application for Payment, prepares and signs one copy of the Application and Certificate for Payment, has it notarized, and gives it to the Designer at the next weekly meeting, together with invoices and title certificates for stored materials. **The total amount of the Application for Payment should be rounded to the nearest whole dollar.**

Many Contractors include a line item on the Summary Application for Payment covering their General Conditions. In these cases the percentage applied to this line item should correspond with the total percentage of work completed on the project. Using a standard monthly amount for General Conditions is not acceptable.

DESIGNER REVIEWS THE SUMMARY APPLICATION. The Designer checks that the Contractor has properly transcribed all information from the pencil draft and added the numbers correctly. If the Designer finds any mistakes in the Summary Application, she must return the entire Application to the Contractor within seven days for corrections. If she has had the Application for more than seven days, she must make the corrections herself.

DHCD REVIEW AND APPROVAL. The Designer approves the Summary Application for Payment, by signing the Application and Certificate for Payment where indicated on the form. The form must also be signed by the DHCD construction advisor and the LHA contract officer. If the cumulative total of the Applications for Payment is less than or equal to 95% of the amended construction amount (which equals the original contract amount plus approved change orders), then the DHCD construction advisor's signature is the only DHCD approval required, although the Application must still be processed by DHCD (Boston) in order to send money to the LHA. To accomplish this, one signed copy should be faxed or e-mailed to DHCD at dhcdcmu@hotmail.com.

Applications that do not meet this criterion require the approval of the DHCD Construction Management Unit Director. In these cases e-mail or fax one copy of the Application along with supporting documentation to DHCD (Boston).

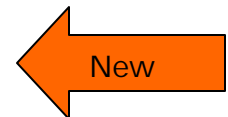


See Appendix C-22 for a sample Summary Application for Payment and

Appendix C-21 Sample Summary Application for Payment for Change Orders, and

Appendix C-23 for Application & Certificate of Payment.

All Appendix forms are available on the DHCD web site www.mass.gov/dhcd





DISTRIBUTION OF APPLICATIONS FOR PAYMENT. After DHCD (either the construction advisor or the Construction Management Director, depending on how far along the job is) has approved the Application for Payment, DHCD keeps one copy and returns one signed copy to the LHA for distribution to the Designer, Contractor, project representative, and the LHA itself.

LHA PAYS THE CONTRACTOR. Once the LHA receives the approved Application from DHCD Construction Management and has received funds from the state treasurer, the LHA issues a check. After the Contractor receives each periodic payment, he makes timely payments to the subcontractors according to the approved amount in the Contractor's Application for Payment.

PENALTY FOR LATE PAYMENT. The LHA must pay the contractor within 30 days after the Designer receives the Contractor's Application for Payment unless the Designer returns the entire Application to the Contractor because of mistakes made in filling out the Application. If the LHA does not make payments on time the Contractor is entitled to daily interest computed at three percentage points higher than the discount rate of the Federal Reserve Bank of Boston starting on the 31st day after the Designer receives the Application for Payment.

STORED MATERIALS. To avoid price increases contractors and subcontractors often order and store materials before they are needed on the job. State law allows the LHA to pay for any properly stored materials as long as the Contractor meets the following three conditions:

- ☐ Approval by the Designer of shop drawings or products;
- ☐ Inspection by the project representative or the Designer to verify the quantities and types of material and that the materials have been properly stored. Proper storage means that the materials are stored in Massachusetts within a one hour drive from the site and are secured from the elements and intruders. When materials are stored off-site the Contractor should allow enough time for this inspection before he includes stored materials in the Application for Payment.
- ☐ Certification of Title and Insurance. The Contractor must present a transfer of title, paid invoices for the materials, and, for any materials stored off-site, a certificate of insurance for all risks.

*See Appendix C-25
for a sample Transfer of Title for
Stored Materials.*

*All Appendix forms are available on
the DHCD web site
www.mass.gov/dhcd*

Once the Contractor meets the conditions listed above he can request reimbursement excluding retainage, transportation, insurance, and handling in the next Application for Payment. All charges for storage, transportation, handling, and insurance are included in the contract price and are not reimbursable to the Contractor. In addition, the Contractor must replace any stolen or damaged materials even after title has been transferred to the LHA. Both the LHA contract officer and the project representative should keep copies of all title certificates, insurance certificates, and invoices for stored materials.

When the Contractor or subcontractors store materials in the same location, they should each mark their materials with the name and location of the project and note the type and quantity of the materials. The materials for each trade should be separated from one another and easily accessible to each subcontractor.



CONSTRUCTION HANDBOOK

4 • ACCEPTING THE PROJECT

4

Accepting the Project

According to the Contract Documents, the project is considered “substantially complete” when “the Owner can occupy or utilize the work for the use for which it is intended.” Typically, a project is not considered substantially complete if there are any outstanding deficiencies which could create a significant nuisance or could be a threat to the safety of the residents.

PREPARING FOR OCCUPANCY

See Appendix C-26 for
Construction Close-out Checklist.

All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd

CONTRACTOR’S PUNCH LIST. As the project nears completion the Contractor makes sure that all unfinished or defective items are promptly completed. As part of this effort, the Contractor prepares a punch list which is a detailed list of deficiencies that require correction or completion before the project can be considered complete. The Contractor distributes this punch list to the sub-contractors and directs them to immediately correct all deficiencies on the list.

DESIGNER’S SAMPLE UNIT PUNCH LIST. The Designer may prepare a preliminary punch list for a sample apartment, to establish the standard of acceptability for the remainder of the project.

MANAGEMENT AND MAINTENANCE IMPLICATIONS. As the project nears completion, the LHA maintenance staff should become familiar with the completed work. The staff should schedule visits with the project representative and the Contractor at times that will not hinder the progress of the work. For new construction projects, the LHA should contact the DHCD asset manager to discuss the operating budget and to coordinate furnishings.

DESIGNER’S INSPECTION AND PUNCHLIST

NOTIFICATION OF INSPECTION. When the Contractor considers the project substantially complete, he notifies the Designer in writing and requests an inspection. The Designer checks with the engineers, the project representative, and the DHCD construction advisor, to determine if they think the project is ready for inspection.

If the Designer agrees with the Contractor that the project is ready for inspection, the Designer and the Contractor schedule the inspection within five days. The Designer notifies the engineers and the LHA contract officer to confirm their attendance at the inspection.

If the Designer thinks the project is not ready for inspection, she writes to the Contractor advising him of the deficiencies that must be corrected before an inspection can take place.

THE SUBSTANTIAL COMPLETION INSPECTION. During this inspection, the Designer, engineers, project representative, and LHA contract officer must check every aspect of the project thoroughly. The Designer and engineers prepare their punch lists, which are typed by the Designer and distributed to the Contractor, the project representative, the DHCD construction advisor, and the LHA contract officer.



CONSTRUCTION HANDBOOK

4 • ACCEPTING THE PROJECT

CORRECTIVE WORK. The Contractor begins his corrective work and distributes the punch list to the affected subcontractors and directs them to begin their corrective work. Although the Designer should make every effort to include all deficiencies in the punch list, the Contractor is still ultimately responsible for correcting any deficient items, even if they are not included in this list.

Once the Designer has determined that there are no deficiencies that would prevent use or occupancy of the project, she prepares one copy of the Certificate of Substantial Completion. This is the legal document stating the date that the LHA accepts the project and that the work, with the exception of the punch list items, is substantially complete.

SIGN THE CERTIFICATE. The Certificate is signed by the Designer, the Contractor, and the DHCD construction advisor and then sent to the LHA for board approval. The LHA e-mails, faxes or mails one copy and the punch list to DHCD Construction Management Unit. DHCD reviews the Certificate and faxes or e-mails one copy of the signed and approved the Certificate to the LHA.

UTILITIES AND KEYS. For new construction projects, the Contractor, with concurrence of the Designer and the LHA, contacts the utility companies to have the utility meters read. The Designer should be sure that all the keys for the project have been properly tagged and turned over to the LHA contract officer.

LHA ASSUMES RESPONSIBILITY FOR THE PROJECT. At exactly twelve noon on the date established by the Certificate of Substantial Completion, the LHA assumes responsibility for the project including normal maintenance and insurance. All guarantees and warranties take effect at this time, and usually, the Designer terminates the services of the project representative.

SCHEDULING UNFINISHED ITEMS. Some projects reach substantial completion in the winter and so the Contractor cannot complete outdoor items like landscaping. In such circumstances, the Contractor should prepare a schedule for finishing major incomplete items. Often projects can be used or occupied in spite of some incomplete items, but this situation should be temporary. The Designer and the DHCD construction advisor can advise the LHA about what level of incompleteness is acceptable and unavoidable.

DHCD insures all state-aided housing developments under a blanket property insurance policy and a blanket comprehensive liability insurance policy. When a new construction project approaches substantial completion, the LHA should contact the DHCD housing management specialist @ 617 573-1150 to arrange for insurance coverage on the project.

CERTIFICATE OF SUBSTANTIAL COMPLETION

*See Appendix C-27 for
the Certificate of
Substantial Completion.*

*All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd*

PROPERTY AND COMPREHENSIVE INSURANCE

5

CONSTRUCTION CLOSE OUT PROCEDURES

After substantial completion, work still remains to be done by the Contractor, the Designer, and the LHA.

- ❑ The Contractor completes the punchlist items.
- ❑ The Designer inspects and approves the punchlist items when they have been completed.
- ❑ The LHA continues to process payment requests in a timely fashion and, at the appropriate time, releases the five percent retainage to the Contractor.

This process is often referred to as construction project closeout.

COMPLETION TIMETABLE

The closeout process which is described in detail in this step is also set forth in the following timetable. This timetable is not meant as a replacement for the text, but should be **used as a guide**. If you have questions about a particular procedure, consult the text which deals with that procedure.

The dates will vary somewhat from project to project, except when the time frame is governed by statute or by contract.

PREPARATION FOR MAINTENANCE

OPERATING MANUALS. As the project nears completion, the Contractor obtains two sets of all operating and maintenance instructions or manuals that are required in the specifications. The Contractor collates these into two volumes and submits them to the Designer for approval. Once the Designer determines that the documentation is complete, the contractor sends both volumes to the LHA for use by the maintenance staff. The Designer notes any manuals outstanding as of the date of substantial completion on the punch list.

MAINTENANCE INSTRUCTION. The Contract Documents may require that the Contractor and subcontractors instruct the LHA's maintenance personnel and the service vendor, if applicable, in the proper use and maintenance of the mechanical systems and other equipment. If such instruction is required, the Contractor should schedule training so that the service vendor, if applicable, and the maximum number of maintenance personnel can attend. The person giving the instruction should be qualified to do so.

When the training has taken place, the Contractor should prepare a Certificate of Compliance stating that the LHA's staff and service vendors have been properly instructed in the use of the equipment. The LHA contract officer should sign this Certificate indicating that training has been adequate.

See Appendix C-26 for
Construction Close-out Checklist.

All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd

Completion Timetable

Day 0	Date established by Certificate of Substantial Completion.
Day 30	Rating Forms. The LHA and the Designer complete the Contractor Rating Form and send it to Division of Capital Asset Management and Maintenance and a copy to DHCD. The LHA completes the Designer Evaluation Form and sends it to DHCD.
Day 45	Inspection. The LHA, the Designer, the DHCD construction advisor, and the Contractor inspect all work. The Designer recommends and begins processing either a Partial Release of Retainage or a Certificate of Final Completion.
Day 50	Application for Payment. The Contractor submits an Application for Payment to release some or all of the retainage.
Day 65	Payment of Retainage. The LHA releases either partial retainage or full retainage, depending on the form submitted NOTE: This date is established by statute (M.G.L. Chapter 30 §39K).
Day 90	Outstanding Items. For jobs with a Partial Release of Retainage, the LHA informs the Contractor by certified letter of all outstanding items needing resolution.
Day 120	Notification. For jobs with a Partial Release of Retainage the LHA notifies the Contractor by certified mail that he has 7 days to correct any remaining outstanding items.
Day 127	Deadline and Final Payment. Deadline for Contractor to correct outstanding items. (Seven days after certified notice.) LHA processes the Certificate of Final Completion and final payment.
Day 270	Warranty Inspection. The Designer, the LHA, and the DHCD construction advisor conduct the nine month warranty inspection. The Designer sends a report of this inspection to the Contractor, who corrects any defective items.
Day 365	Warranty Expiration. One-year warranty period expires. The LHA notifies DHCD and the bonding company if the Contractor has not agreed to correct or has not corrected warranty items. NOTE: This date is established by the Contract Documents.
Years 1-10	Report Failures. The LHA identifies guarantee and other problems and notifies the Contractor and Guarantor and reports any failures to correct problems to the DHCD construction advisor.

FINAL COMPLETION DOCUMENTS

Replacement Parts or Materials. The Contract Documents may also require the Contractor to provide certain spare parts or replacement materials to the LHA. Each time the Contractor delivers a part, he should get a receipt and the LHA should send a copy of the receipt to the project representative for the permanent file. These parts are not to be used to replace or repair items on the punch list.

RECORD DRAWINGS. As the project nears completion, the Contractor must submit all the as-built drawings, including those of the subcontractors, to the Designer. These as-built drawings become the basis of the record drawings. The Designer transfers this information plus information gained from the project representative's records to a set of mylar transparencies. Each sheet must be labeled "Record Drawing" and dated. Upon completion, the Designer makes one set (two sets, if requested by the LHA) of blueline prints and one copy of a CAD file if available. As-built drawings outstanding at the time of substantial completion will be included on the punchlist.

The Designer sends the blueline prints, mylar transparencies, and any CAD disks to the LHA. It is very important that the LHA keep the transparencies, and the blueline prints where staff or consultants have access to the information on the drawings.

PERMANENT PROJECT FILE. In addition to the record drawings, the LHA should maintain a permanent file of the following:

- ❑ the project representative's files, including shop drawings, submittals, daily reports, Designer's reports, correspondence, progress photographs, change orders, supplemental instructions, test reports, and applications for payment, including documentation for payments for stored materials;
- ❑ written guarantees for materials or equipment, operating manuals, and maintenance instructions; and
- ❑ the LHA's own files, including change orders, applications for payment, correspondence, completion papers, occupancy permit, Designer's invoices, and all other receipts and records of payments made in connection with the project.

See M.G.L. Chapter 30 §39R.

RECORD KEEPING. M.G.L. Chapter 30, Section 39R, which governs record keeping for all public construction work, requires that the Contractor maintain all books, records, and accounts for the project for at least six years after final payment. These records must be kept in "reasonable detail" and must accurately and fairly reflect the transactions of the Contractor relating to the project.

The following material describes the several steps required to close out a project. Some of these steps are quite simple; others are more complex. Some have statutory deadlines that determine when they must be completed; others have deadlines derived from DHCD's cumulative experience. Taken altogether, they can be daunting to the uninitiated. Therefore, in addition to describing the steps in the text below, there is a timetable at the beginning of this section that sets forth the steps in chronological order. The reader is **strongly urged** to read both the text and the timetable to gain a full appreciation of how the various steps relate to one another.

FINAL COMPLETION PROCEDURES

PAYMENT OF RETAINAGE. Pursuant to M.G.L. Chapter 30, Section 39K, which governs payments to contractors on public construction jobs, if the Contractor submits an Application for Payment requesting full payment of the five percent (5%) retainage within 65 days from the date of substantial completion, or within 65 days of the date the project is more than 99% complete, whichever occurs first.

However, the LHA should continue to retain sufficient funds to cover:

- ❑ the cost of completing any incomplete or unsatisfactory items of work;
- ❑ the value of any demands for direct payment by subcontractors; and
- ❑ any **anticipated** demands for direct payment by subcontractors, as may be indicated by the contractor's record of payments to the subcontractors.

Before the LHA pays any or all of the retainage, the Designer needs to make an inspection. Often the project representative is no longer on the job. It is important that the LHA contract officer coordinate inspections with the Designer, so the Designer does not make wasted trips to the job site.

The latest date that this inspection should be made is approximately 45 days after the date of substantial completion. This allows enough time for the Designer and contractor to prepare the forms necessary for the contractor to be paid all or part of his retainage by the 65th day after substantial completion. These forms are described in detail later in this chapter and are all available on DHCD's web site.

RELEASE OF RETAINAGE

Immediately after the Designer makes her 45-day inspection as described above, she needs to decide whether or not the job is complete in all respects. This decision is important because there are two paths leading to final project closeout. The Designer reviews the status of each of the following items before making this decision:

- ☐ punchlist items;
- ☐ non-conforming work discovered since the preparation of the punchlist ;
- ☐ proposed Change Orders;
- ☐ subcontractor demands for direct payment from the LHA;
- ☐ claims against the LHA by the contractor;
- ☐ claims against the contractor by the LHA for late completion;
- ☐ complete set of record drawings;
- ☐ complete set of operating and/or maintenance manuals;
- ☐ adequate maintenance instruction;
- ☐ replacement/spare parts; and
- ☐ complete set of written warranties/guarantees.

If all these items are complete, the Designer executes a Certificate of Final Completion. If any of these items are unresolved or incomplete, the Designer executes a Certificate for Partial Release of Retainage.

See M.G.L. c30 §39F

DEMANDS FOR DIRECT PAYMENT BY SUBCONTRACTORS. By statute, certain sub-contractors may request payment directly from the LHA if the contractor fails to make a periodic payment to the subcontractor or fails to include in his Application for Payment an amount for labor and materials furnished by the subcontractor. This procedure, and the situation where it applies, is set forth in M.G.L. Chapter 30, §39F. You are strongly urged to read this statute in its entirety.

DAMAGES FOR LATE COMPLETION. Sometimes the contractor will fail to complete the project within the time allowed by the Contract Documents. In those instances, the LHA often incurs added costs, such as payments for the Designer's extended construction supervision, the salary of the project representative, and any lost rental income or subsidy costs. Rather than calculate all these costs, the Contract Documents provide for the LHA to deduct from monies otherwise due the Contractor an amount based on how late the Contractor completed the project. This amount is called liquidated damages, and the daily amount that is to be deducted is stated in the Contract Documents.

Under the terms of the Contract for Financial Assistance between the LHA and the Commonwealth, the LHA is charged with the duty of monitoring the construction contract. Part of this duty entails seeking liquidated damages when appropriate. Therefore, the LHA should closely examine every instance where the contract is not completed on time and, after consulting with the DHCD construction advisor and the Designer, determine if liquidated damages should be assessed.



CONSTRUCTION HANDBOOK

5 • CONSTRUCTION CLOSEOUT PROCEDURES



DESIGNER PREPARES CERTIFICATE OF FINAL COMPLETION. If, after the 45-day inspection, the Designer concludes that **all** the items listed above have been satisfactorily completed or resolved, she prepares one copy of the Certificate of Final Completion.

After the Designer has completed the top portion of the Certificate of Final Completion, she forwards the form to the Contractor.

See Appendix C-30 for a copy of the Certificate of Final Completion

*All Appendix forms are available on the DHCD web site
www.mass.gov/dhcd*

CONTRACTOR EXECUTES CERTIFICATE OF FINAL COMPLETION. The Contractor signs, dates and has notarized the middle portion of the Certificate. He also prepares the final Application for Payment. The Certificate of Final Completion and the Applications or Payment are then forwarded to the Designer.

DESIGNER APPROVES CERTIFICATE OF FINAL COMPLETION. The Designer reviews the Certificate of Final Completion and final Application for Payment. If these documents are in order, she signs and dates of both documents and forwards the same to the LHA.

LHA VOTES TO APPROVE CERTIFICATE OF FINAL COMPLETION. The LHA contract officer should review the Certificate of Final Completion and the final Application for Payment received from the Designer. If there are any problems, the contract officer should contact the Designer immediately. If there are no problems, the contract officer should bring up the Certificate for a vote by the LHA board. After board approval, the contract officer should complete the lower portion of the Certificate and e-mail, fax or mail a copy of the Certificate and the final Application for Payment to DHCD Construction Management at dhcdcmu@hotmail.com.



It is essential that the LHA board act quickly on the Certificate of Final Completion and the Application for Payment because of the statutory requirement that the Contractor be paid his retainage within 65 days from the date of substantial completion and because of the added statutory requirement that the Contractor be paid within 30 days from the date he delivers an Application for Payment to the Designer.

This may require holding a special board meeting.

DHCD REVIEW AND APPROVAL. Upon receipt of the Certificate of Final Completion and Application for Payment, DHCD will check both for accuracy and completeness. If OK, the DHCD Director of Construction Management will sign both and return the approved Certificate and Application for Payment to the LHA for distribution to the Designer, the Contractor, and the project representative, if one is still employed. The LHA may now pay the Contractor his final payment.

CONSTRUCTION HANDBOOK

5 • CONSTRUCTION CLOSEOUT PROCEDURES



*See Appendix C-29 for a copy
of the Certificate for Partial
Release of Retainage*

*All Appendix forms are available
on the DHCD web site
www.mass.gov/dhcd*

DESIGNER PREPARES CERTIFICATE FOR PARTIAL RELEASE OF RETAINAGE. If, after the 45 day inspection, the Designer determines that there are unfinished items from the list described above or if there are other unresolved claims, the Designer does not prepare the Certificate of Final Completion and does not release all of the retainage. However, the Contractor is still entitled to receive a partial release of his retainage within the statutory 65 day time period described above in "Payment of Retainage."

Therefore, instead of preparing the Certificate of Final Completion, the Designer prepares the Certificate for Partial Release of Retainage and a monetized punchlist showing the claims and deficiencies at this time. This monetized punchlist supersedes the punch list prepared at the time of substantial completion. The Designer assigns a dollar value to each item on the list and then totals these amounts. After the Designer has completed the top portion of the Certificate for Partial Release of Retainage, she forwards the form, along with the monetized punch list, to the Contractor.

CONTRACTOR EXECUTES CERTIFICATE FOR PARTIAL RELEASE OF RETAINAGE. The Contractor signs, dates and has notarized the middle portion of the Certificate. He also prepares an Application for Payment reflecting the reduction in retainage noted by the Designer in the top portion of the Certificate. The Certificate for Partial Release of Retainage, the monetized punchlist, and the Applications for Payment are then forwarded to the Designer.

DESIGNER APPROVES CERTIFICATE FOR PARTIAL RELEASE OF RETAINAGE. The Designer reviews the Certificate for Partial Release of Retainage and the Application for Payment. If these documents are in order, she signs and dates both documents and forwards the same to the LHA.

LHA REVIEW, DHCD REVIEW, LHA PAYMENT. The Certificate for Partial Release of Retainage and the Application for Payment are processed in the same manner as the Certificate of Final Completion. Follow the sequence of LHA approval, DHCD approval, and payment to the Contractor described previously. As with the Certificate of Final Completion, it is critical that the LHA board act quickly on the Certificate for Partial Release of Retainage, and accompanying Application for Payment in order to avoid having to pay the Contractor interest because he did not receive his payment in a timely fashion.

COMPLETION OF PUNCHLIST WORK. Immediately after the Certificate for Partial Release of Retainage is issued, the Contractor begins to complete or correct each item on the monetized punch list. When the Contractor has finished, the Designer again inspects the work. If all work has been satisfactorily completed and there are no unresolved claims, the Designer prepares five copies of the Certificate of Final Completion, which is processed as noted above.

If the Contractor does not fix the items on the monetized punch list in a timely manner, the LHA may have the work done under a separate contract and back-charge the Contractor. To do this, the LHA needs prior written permission from DHCD.



WARRANTIES AND GUARANTEES

CONTRACTOR'S WARRANTY. The Contractor and subcontractors must correct at their own expense any defective items or items not in conformance with the Contract Documents for one year from the date of substantial completion. During this period the LHA should promptly send written notice to the Contractor describing any items that need attention or replacement. If the Contractor or any subcontractors fail to do the corrective work or if the LHA finds that the same items are continually failing, the LHA should notify the Designer and the DHCD construction advisor.

NINE MONTH INSPECTION. Approximately nine months after the date of substantial completion, the Designer conducts an inspection of the entire project to discover any problems the Contractor is obligated to correct under the terms of the Contractor's warranty. The Designer should be accompanied by the LHA executive director, the DHCD construction advisor, and the Contractor, if the Contractor chooses to attend. The LHA should also designate a maintenance person and someone from the service vendor, if applicable; to join the inspection group since these persons may be helpful in distinguishing warranty-related problems from maintenance problems and ordinary wear and tear. Additionally, the Designer may be able to offer useful maintenance suggestions.

Immediately after the inspection is complete, the Designer prepares a formal list of all problems encountered during the inspection that are to be corrected by the Contractor. To give the Contractor adequate time to respond to this list, the Designer mails it, return receipt requested, to the Contractor within two weeks of the inspection. Failure to notify the Contractor promptly may result in the LHA having to spend money and time to correct problems that are the Contractor's responsibility. This, in turn, may cause the LHA to seek reimbursement from the Designer.

The Designer also sends copies of this list to the LHA executive director, and the DHCD construction advisor.

When the Contractor receives the list of non-conforming warranty items, he should immediately proceed to correct them. If some of the items require the work of subcontractors, it is the responsibility of the Contractor to contact the subcontractors and to see that their work is done correctly.

One month after the completion of the inspection the Designer should contact the Contractor for a report on the progress of the work and to schedule a reinspection.

In the event the Contractor fails to satisfactorily perform the warranty work identified by the Designer, the LHA should notify the DHCD construction advisor immediately.

MANUFACTURERS' GUARANTEES. The Contractor must deliver any manufacturers' guarantees or warranties to the Designer before final payment to the Contractor can be made. Failure by the Contractor to deliver a required guarantee or warranty constitutes a failure to fully complete the work in accordance with the Contract Documents. The Designer will include any outstanding guarantees on the punch list.

Problems that occur more than one year after substantial completion should be investigated to see if they are covered by manufacturer's guarantees. The LHA should include in its maintenance plan scheduled inspections of all guaranteed items well before the guarantee expires. To help keep track of items under guarantee, DHCD suggests that the LHA create a project master list of all guaranteed items.

If the LHA has recurring problems with any item covered by a manufacturer's guarantee, the LHA contract officer should consult with the Designer, notify the DHCD construction advisor, and contact the actual guarantor. As is the case with the Contractor's warranty, it is essential that guarantee problems be reported in a timely manner. Otherwise, the LHA may have to spend money to fix problems that are a manufacturer's responsibility. Failure of a manufacturer to honor a guarantee should be reported promptly to the DHCD construction advisor.

FAILURES IN DESIGN, MATERIALS, OR WORKMANSHIP. You may find that the building, its components, or its equipment are not performing as anticipated. In the course of routine maintenance and inspection you may note problems that require maintenance beyond that addressed in the maintenance plan. Either situation may mean a failure in design, materials, or workmanship requiring special effort to resolve.

If you believe you have such a problem, contact the DHCD construction advisor immediately. He informs DHCD staff who will assist in the investigation and resolution of the problem. Successful resolution of such problems requires planned, coordinated inspection and analysis of the building or equipment. The Designer, the Contractor, and manufacturers may all need to be involved.

Note: Do not use consultants to investigate problems unless you have obtained prior written approval from DHCD. DHCD cannot pay for consultants engaged in such investigations without its prior written approval.